In brief

For decades, construction has lagged other sectors in productivity performance. Now there is an opportunity for a step change: shifting many aspects of building activity away from traditional onsite projects to offsite manufacturing-style production. While modular (or prefabricated) construction is not a new concept, it is attracting a fresh wave of interest and investment on the back of changes in the technological and economic environment. This research quantifies the potential benefits, explores the challenges, and looks at whether, this time, modular construction will have a more widespread and sustainable impact. Among our findings:

— As one of the largest sectors globally, a profound shift in construction can have major impact. Recent modular projects have already established a solid track record of accelerating project timelines by 20–50 percent. The approach also has the potential to yield significant cost savings, although that is still more the exception than the norm today. Our analysis suggests that leading real estate players that are prepared to make the shift and optimize for scale will be able to realize more than 20 percent in construction cost savings, particularly as everyone involved moves up the learning curve. Under moderate assumptions of penetration, the market value for modular in new real-estate construction alone could reach $130 billion in Europe and the United States by 2030.

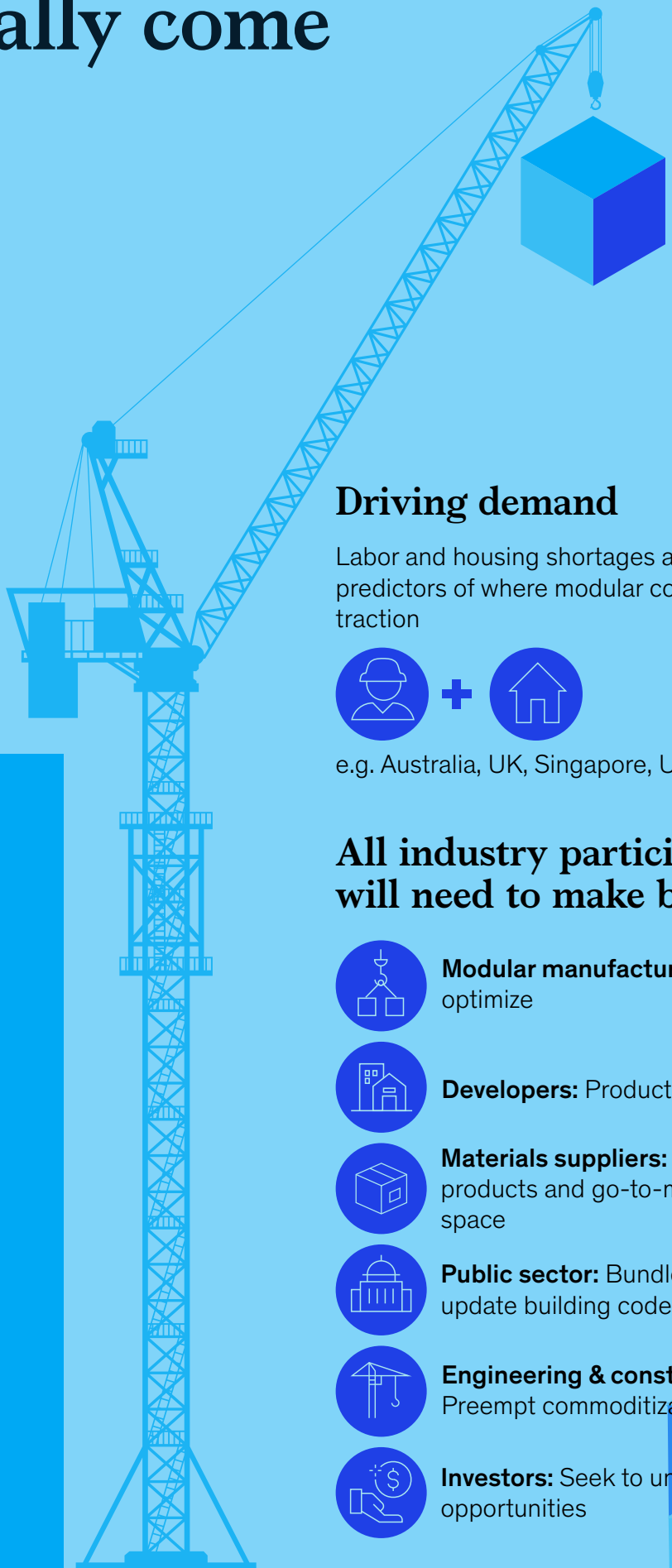
— Prefabricated housing has achieved a sustainable foothold in only a few places, including Scandinavia and Japan. It has been in and out of favor in markets such as the United States and the United Kingdom since the post-war era. Yet there is reason to believe the current revival could be different. The industry is adopting new materials as well as digital technologies that enhance design capabilities and variability, improve precision and productivity in manufacturing, and facilitate logistics. Countering the old reputation of prefabricated housing as an ugly, cheap, poor-quality option, some builders are focusing on sustainability, aesthetics, and the higher end of the market.

— Multiple factors determine whether a given market is likely to embrace modular construction. The two biggest determinants are real estate demand and the availability and relative costs of skilled construction labor. In places such as the US West Coast, the southern part of the United Kingdom, Australia's East Coast, and Germany's major cities, labor shortages and large-scale unmet demand for housing intersect, making this model particularly relevant.

— Capturing the full cost and productivity benefits of modular construction is not a straightforward proposition. It requires carefully optimizing the choice of materials; finding the right solution between 2D panels, 3D modules, and hybrid designs; and mastering challenges in design, manufacturing, technology, logistics, and assembly. It also depends on whether builders operate in a market where they can achieve scale and repeatability. Public owners and regulators can facilitate a shift in the industry structure, too.

— In many countries, modular construction is still very much an outlier. But there are strong signs of what could be a genuine broad-scale disruption in the making. It is already drawing in new competitors—and it will most likely create new winners and losers across the entire real estate and construction ecosystem.

Modular construction's time may have finally come



The benefits

Modular construction can speed construction by as much as

50%

In the right environment and trade-offs, it can cut costs by

20%

The opportunity

Modular construction could claim

$130B

of the market by 2030 in U.S./Europe at moderate penetration, delivering annual cost savings of

$22B

This would help fill a

$1.6T

productivity gap identified in 2017

Driving demand

Labor and housing shortages are the biggest predictors of where modular construction can gain traction

e.g. Australia, UK, Singapore, U.S. West Coast

All industry participants will need to make big changes

- **Modular manufacturers:** Scale and optimize
- **Developers:** Productize and partner
- **Materials suppliers:** Prepare for a shift in products and go-to-market; or enter the space
- **Public sector:** Bundle pipelines and update building codes
- **Engineering & construction firms:** Preempt commoditization
- **Investors:** Seek to understand new opportunities